Course Description: This course looks at the analysis of discrete-time medical signals and images. Topics include the design of discrete-time filters, medical imaging and tomography, signal and image compression, and spectrum estimation. The course project explores the application of these techniques to actual medical data.

Time: Reading Course

Location: 129 Caruth Hall

Instructor: Carlos E. Davila

Text: none, however several texts will be recommended and a number of survey articles will be studied.

Topics:
I. A/D and D/A Conversion
II. DSP and Digital Filter Design
III. Computerized Tomography (CT)
IV. Medical Imaging Systems
V. Signal Compression
VI. Image Compression
VII. Hidden Markov Models

Grading Policy:
Midterm Exam 20%
Final Exam 20%
Module Projects 50%
Written Homework Assignments 10%
SMU Incomplete Grades Policy

An Incomplete (I) may be given if the majority of the course requirements have been completed with passing grades but for some justifiable reason, acceptable to the instructor, the student has been unable to complete the full requirements of the course. Before an (I) is given, the instructor should stipulate in writing to the student the requirements and completion date that are to be met and the grade that will be given if the requirements are not met by the completion date. The maximum period of time allowed to clear the Incomplete grade is 12 months (except for graduate thesis and dissertation courses). If the Incomplete grade is not cleared by the date set by the instructor or by the end of the 12-month deadline, the (I) may be changed to an F or to another grade specified by the instructor. The grade of (I) is not given in lieu of an F, WP, or other grade, each of which is prescribed for other specific circumstances. If the student’s work is incomplete and the quality has not been passing, an F will be given. The grade of (I) does not authorize the student to attend the course during a later semester. Graduation candidates must clear all Incompletes prior to the deadline in the official University Calendar, which may allow less time than 12 months. Failure to do so can result in removal from the degree candidacy list and/or conversion of the (I) to the grade indicated by the instructor at the time the (I) was given.